## REMARKS

Claims 1, 4-15 and 22 are pending in this application. Claims 1 and 11 have been amended. Claims 23-39 have been withdrawn, without prejudice, as being directed to a constructively non-elected invention. Applicants reserve the right to file one or more divisional applications directed to the subject matter of the non-elected claims. No new matter has been added. In view of these amendments and the following remarks, Applicants believe that all the asserted rejections are in condition for withdrawal and all the claims are in condition for allowance.

**Rejections under 35 U.S.C. § 112, first paragraph**

Claims 1, 4-15 and 22 stand rejected under 35 U.S.C. § 112, first paragraph, for purported lack of enablement. The Examiner asserts that although there is enablement for bovine lactoferrin and fluconazole for the treatment of *Candida*, the specification does not reasonably provide enablement for a medicament for the treatment and/or prevention of infections caused by bacteria, fungi, viri and the like, inflammations and/or tumors.

Claims 1 and 11 have been amended to recite a medicament for the treatment and/or prevention of infections and/or inflammation caused by "*Candida* species," and the recitation "bacteria, fungi, viri and the like, inflammations and/or tumors" has been deleted. The term "inflammation" has been added to claim 1, as it is known that *Candida* infections can cause inflammation of tissue, and support for this term is found in original claim 1. The claimed invention, therefore, now is restricted to treating or preventing infections and/or inflammation caused solely by *Candida* species, thus obviating this rejection.

**Rejections under 35 U.S.C. § 102 (b)**

Claims 1, 4, 5, 8, 9, 11, 15 and 22 stand rejected under 35 U.S.C. § 102(b) for purported anticipation by Steinberg (WO 97/18827). The Examiner asserts that Steinberg teaches composition suitable for treating oral mucositis with antimicrobial peptides comprising a polycationic peptide (lactoferrin) and a buffer (citric acid), which discloses a final pH value of

7.0-7.2. The Examiner further asserts that Steinberg discloses vehicles and formulations containing 0.12-2.0 mg/ml, and directs Applicants' attention to specific pages for the above disclosures.

The present invention as now claimed inheres in a medicament for treating or preventing infections and/or inflammation caused by *Candida* species in which the medicament is comprised of a polycationic peptide or protein, such as lactoferrin, bovine lactoferrin, lactoferricin, conalbumin (ovotransferrin) and hydrolysates of lactoferrin; and a buffer in an amount of between about 0.5-100 meq $H^+$ in order to maintain the pH of treatable tissue within a pre-selected range of about 5 to 8.5. Claim 1, therefore, is restricted to the treatment or prevention of *Candida* species and the polycationic peptides or proteins are restricted to lactoferrins, related proteins, and derivatives of lactoferrins. In this regard, it should be noted that lactoferricin is a derivative of lactoferrin, and conalbumin and ovotransferrin are related proteins of lactoferrin, all of which together are included in the class known as transferrins.

In contrast to the above, Steinberg discloses methods and compositions for treating oral mucositis with antimicrobial peptides, such as protegrin peptides. Applicants respectfully point out that nowhere in the Steinberg disclosure is there a teaching or a suggestion to treat *Candida* species with lactoferrin, derivatives of lactoferrin or related proteins. In this regard, the Examiner directs Applicants' attention to particular pages in the Steinberg reference as providing the requisite disclosures.

In particular, at page 5, lines 23-34, Steinberg discloses that "antimicrobial peptides useful in the methods of the invention are protegrin peptides and/or congeners thereof," and Steinberg then proceeds to list other broad spectrum antimicrobial peptides which also may be useful in the methods of the invention, in which "lactoferrins" is disclosed in a list of twenty-two peptides! Applicants respectfully submit that it is only with knowledge of the claimed invention that one might work backwards, in hindsight, to purport that Steinberg teaches the usefulness of lactoferrins in the invention, and then only for treating oral mucositis, not *Candida*

species. Thus, with respect to lactoferrins, Steinberg is a classic example of a text from which an accidental unrecognized disclosure cannot be considered to constitute an anticipation.

Applicants are directed to page 26, lines 9-10 for the disclosure of cationic peptides. As discussed above, Steinberg teaches the use of protegrin peptides and/or congeners thereof and only mentions lactoferrins in a list of twenty-one other compounds that may be used in the invention.

Applicants are directed to page 37, lines 8-22. In this passage, citric acid is disclosed as one of several acidifying ingredients, not buffering agents, and even though buffering agents are provided in this passage, nowhere is it disclosed that a buffering agent be present in an amount of between about 0.5-100 meq $H^+$ in order to maintain the pH of treatable tissue within a pre-selected range of about 5 to 8.5.

Applicants are directed to page 60, lines 19-22, where it is stated that "Vehicle and formulations containing 0.12, 0.5 and 2.0 milligrams of OM-3 per milliliter were delivered at doses of 0 (vehicle), 0.06, 0.25 and 1.0 milligrams of OM-3 per application,..." Applicants respectfully point out that this disclosure, which provides concentrations of formulations administered to animals, is not pertinent to the claimed invention.

Thus, based on the foregoing disclosures, Applicants respectfully submit that Steinberg neither teaches nor suggests a medicament for treating or preventing infections and/or inflammation caused specifically by *Candida* species in which the medicament is comprised of a polycationic peptide or protein from the transferrin class of compounds, such as lactoferrin, bovine lactoferrin, lactoferricin, conalbumin (ovotransferrin) and hydrolysates of lactoferrin, in which a buffer is present in an amount of between about 0.5-100 meq $H^+$ in order to maintain the pH of treatable tissue within a pre-selected range of about 5 to 8.5.

**Rejections under 35 U.S.C. § 103 (a)**

Claims 6, 7, 10, 12-14 and 22 stand rejected under 35 U.S.C. § 103(a) for purported obviousness over Wakabayashi et al. in view of Steinberg. The Examiner asserts that

Wakabayashi teaches the effect of bovine lactoferrin coupled with fluconazole to inhibit hyphal growth of *Candida albicans* and that, although Wakabayashi does not teach a buffer for maintaining the pH of treatable tissue within a pre-selected range, Steinberg teaches a buffer which discloses a final pH of 7.0-7.2. The Examiner again directs Applicants' attention to the above-cited pages.

Applicants respectfully point out that Wakabayashi discloses the effect of triazole antifungal agents in combination with lactoferrin or lactoferricin B on *C. albicans*. Furthermore, Wakabayashi teaches that "the peptide alone had almost no effect." In contrast to this express language, which one skilled in the art would understand to mean that the use of the peptide alone is not efficacious for the treatment of *C. albicans*, the Examiner states that "Wakabayashi does teach that the peptide alone does have an effect, however, slight."

Applicants respectfully point out that the present invention as now claimed provides a medicament comprised solely of lactoferrins, related proteins and derivatives of lactoferrins in an amount effective to treat *Candida* species. In contrast, Wakabayashi discloses that lactoferrin or lactoferricin B "had almost no effect" when used alone to treat *C. albicans*. Applicants, therefore, submit that the Wakabayashi disclosure would direct one skilled in the art away from using lactoferrin or lactoferricin B alone to treat *C. albicans*, not motivate them to use these compounds alone and have any expectation that they would be effective to treat *Candida* species.

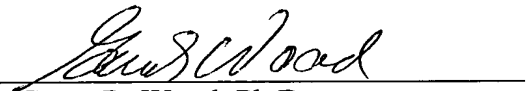
Based on the foregoing, neither Steinberg nor Wakabayashi, either alone or in combination, teaches or even suggests the critical feature of the claimed invention, namely, the new and unexpected finding that the class of transferrins alone, such as lactoferrins, related proteins and derivatives of lactoferrins, in combination with a buffer in an amount of between about 0.5-100 meq $H^+$ in order to maintain the pH of treatable tissue within a pre-selected range of about 5 to 8.5, can be used to treat or prevent infections and/or inflammation caused by *Candida* species.

In view of the foregoing remarks, it is respectfully submitted that all of the pending claims in the present application comply with the requirements of Sec. 112 and are distinguishable from the cited prior art. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

It is respectfully requested that the amendments be entered for purposes of appeal. A Notice of Appeal is being filed concurrently herewith.

Respectfully submitted,

THE WEBB LAW FIRM

By 

Gwen R. Wood, Ph.D.
Registration No. 51,027
Attorney for Applicants
700 Koppers Building
436 Seventh Avenue
Pittsburgh, Pennsylvania 15219-1845
Telephone: 412-471-8815
Facsimile: 412-471-4094
E-mail: webblaw@webblaw.com